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EXAMINER	
BELLAMY, TAMIKO D	

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/019,307	Applicant(s) CAMPBELL ET AL.	
	Examiner Tamiko D. Bellamy	Art Unit 2856	

-- The MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 July 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 April 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 10-15. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of sensors spaced around the periphery of the machine must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3, 4,10, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim include the language "the or each sensor" is indefinite. In the dependent claim, the clam recites the use of at least one sensor.

Claim 3 recites the use of a "power supply" and the preceding claims mentions a "receiver". It is not clear to whether the receiver or the transmitter is to include a power supply.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 12, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Piety et al. (6,189,384).

With respect to claim 1, Piety et al. discloses in Figs. 1-6 an ultrasonic monitoring system that locates leaks of air, steam or other gases (col. 4, lines 64-65); a ultrasonic sensor 22 mounted housing 24 and the ultrasonic sound waves 12 received by the sensor 22 are stored in a microprocessor 32 (col. 5, lines 15-16; 56-62); a transmitter 34 placed inside a pipe, tank or other sealed environment that is desired to check for leaks (col. 14, lines 22-25); and a display 66 viewed by operator 20 when ultrasonic data measurements are taken (col. 7, lines 22-24).

With respect to claim 2, Piety et al. discloses in Figs. 1-6 an ultrasonic sensor 22 mounted in a housing 24 and the housing 24 is held by the operator 20 pointed toward a machine (col. 5, lines 15-18), and the ultrasonic sound waves 12 received by the sensor 22 are stored in a microprocessor 32 (col. 5, lines 56-59).

With respect to claim 3, Piety et al. discloses in Fig. 12 a charger and transmitter 34 (col. 6, lines 4-5), and a transmitter 34 placed inside a pipe, tank or other sealed environment that is desired to check for leaks (col. 14, lines 22-25).

With respect to claims 12 and 18, Piety et al. discloses in Figs 1-7a, and 13 an ultrasonic monitoring system 10 that locates leaks of air, steam or other gases (col. 4, lines 64-65), a monitoring schedule detailing the times at which each machine should be tested and the test that should be performed on each machine (col. 15, lines 1-15), when trigger 54 is pressed the ultrasonic monitoring system 10 begins to collecting data (col. 6, lines 65-66); the microprocessor system 32 is used to store and analyze the data collected, provides testing information and prompt the operator 20 to take measurements from particular locations (col. 5, lines 60-64), the sensor socket 36 provides the ultrasonic electrical signal that is related to the strength of the ultrasonic sound waves 12 received by the ultrasonic sensor 22 to a voltage controlled amplifier 76; and the amount of amplification is controlled by the microprocessor 78, and a display 66 viewed by operator 20 when ultrasonic data measurements are taken (col. 7, lines 22-24). With respect to further limitations of claim 18, Piety et al. discloses the portable computer examines the testing information and prompts the operator to proceed to the first testing location block 128; and if another test needs to be performed, the computer prompts the operator to proceed to the next location and the method returns to block 128 (col. 15, lines 15-18; 40-43), the portable computer configures the microprocessor control unit to correctly perform the test (col. 15, lines28-30), the central computer compares the test data from the most recent test to the data from the previous test to determine the

condition of the machine being monitored (col. 15, lines 52-54), and the test results from the previous measurements may be used to generate alarm levels for the next series of measurements (col. 15, lines 55-67, col. 16, lines 1-8).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-12, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Root. (3,690,570) in view of Meyer (4,237,454).

With respect to claim 1, Root lacks the detail of a sensor located on the machine, a transmitter representing sensed mechanical waves, a receiver at location remote from the sensors, a data processor connected to the receiver, and a display means representing parameters indicative of mechanical waves. However, Root discloses a microphone 56 responsive to variations in the sound of the mill (col. 3, lines 54-55). Meyer discloses in Figs. 2-3 a monitor unit 16 with a magnet that is mounted on the housing 14 to sense vibration and has a AM transmitter and central room equipment including a receiving antenna 26, a receiver 27 tuned to a carrier frequency, a demodulator 28 determines the modulating frequency of the received signal and presents the information to a fault locator which can be microprocessor 29 (col. 4, lines 4-8) and a display device 30 giving the output information which pinpoints the malfunctioning equipment (col. 4, lines 14-

15). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer to test machine with a transmitter, receiver and a processor as the system of Root would operate equally well on either tested structure. Evidence of this can be found in Root that discloses a microphone 56 responsive to variations in the sound of the mill (col. 3, lines 54-55), and the microphone is adjacent to the mill (col. 3, line 57-58). The microphone is used as a type of sensor to detect vibrations within the mill.

With respect to claim 2, Root lacks the detail of a receiver located separate from the machine. However, Meyer discloses in Fig. 3 the monitor unit 16 mounted on a rotating equipment (abstract), and central room equipment including a receiving antenna 26, a receiver 27 tuned to a carrier frequency (col. 4, lines 4-8). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer to test machine with a receiver as the system of Root would operate equally well on either tested structure. Evidence of this can be found in Root that discloses a microphone 56 responsive to variations in the sound of the mill (col. 3, lines 54-55), and the microphone is adjacent to the mill (col. 3, line 57-58). The microphone is used as a type of sensor to detect vibrations within the mill.

With respect to claim 3, Root lacks the detail of a power supply located on the machine. However, Meyer discloses power to drive both the defect detection and the transmitting circuitry that are derived from a piezo-ceramic element 22, and the piezoelectric element is a high impedance power supply (col. 3, lines 30-33; 45-48). It would have been obvious at the time the invention was made to a person having ordinary

skill in the art to use Root according to the teachings of Meyer to test machine with a power supply located on the machine as the system of Root would operate equally well on either tested structure. Evidence of this can be found in Root that discloses a microphone 56 responsive to variations in the sound of the mill (col. 3, lines 54-55), and the microphone is adjacent to the mill (col. 3, line57-58), and a feeder drive mechanism including a power supply 46.

With respect to claim 4, Root lacks the detail of a sensor located on the exterior surface of the machine. However, Meyer discloses in Fig. 3 the monitor unit 16 mounted on rotating equipment (abstract), and a monitor unit 16 with attached magnet 17 that is mounted on the stationary housing 14 (col. 8-10). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer to test machine with a sensor on the exterior of the machine as the system of Root would operate equally well on either tested structure. Evidence of this can be found in Root which discloses a microphone 56 responsive to variations in the sound of the mill (col. 3, lines 54-55), microphone is adjacent to the mill (col. 3, line57-58).

With respect to claim 5, Root lacks the detail of a data processor adapted to produce output signals that represent acoustic events. However, Meyer discloses central room equipment including a receiving antenna 26, a receiver 27 tuned to a carrier frequency, a demodulator 28 determines the modulating frequency of the received signal and presents the information to a fault locator 29 which can be microprocessor with a look-up table giving the piece of equipment with the fault condition or number of the

monitor unit 16 at that location (col. 4, lines 4-8). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer to test the machine using a data processor as the system of Root would operate equally well on either tested structure. Evidence of this can be found in Root which discloses the microphone 56 which goes to a conditioning signal unit 58 connected to a transducer 60, the signal from the element 60 is sent directly to a monitor switch 62, and the monitor switch is adapted to deliver a signal to the recorder controller 44 (col. 3, lines 57-67), and the when the response of the microphone 56 reaches a limit, the system includes means to take the feeder off automatic control (col. 2, lines 20-26).

With respect to claims 6-9, Root lacks the detail of a plurality of sensors placed around the periphery of the machine. With respect to further limitations of claim 7, Root lacks the detail of the sensors are equispaced around the periphery of the machine. With respect to further limitations of claim 8, Root lacks the detail of the sensors are arranged in an array. With respect to further limitations of claim 9, Root lacks the detail of at least one detector for monitoring the location of the sensors for a predetermined time. However, Meyer discloses in Figs. 2-3 a monitor unit 16 with a magnet 17 that is mounted on the housing 14 to sense vibration (col. 3, lines 8-10), and placing the monitor unit 16 is relatively simple and requires nothing more than placing the units 16 and logging the unit identity numbers vs. location (col. 4, lines 16-19, 36-38). Therefore, the method Meyer uses does incorporate the use of more than one sensor. It is well know art to use a plurality of accelerometers to detect vibration of rotating machinery. Under the principles of inherency, if a prior art device, in its normal and usual operation, would

necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification, it can be assumed the device will inherently perform the same process. *In re King*, 802 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer to test the machine a plurality of sensors as the system of Root would operate equally well on either tested structure. Evidence of this can be found in Root which discloses a microphone 56 responsive to variations in the sound of the mill (col. 3, lines 54-55), microphone is adjacent to the mill (col. 3, line57-58).

With respect to claim 10, Root lacks the detail of the processor calculating the location of the sensor. However, Meyer discloses a central room equipment including a receiving antenna 26, a receiver 27 tuned to a carrier frequency, a demodulator 28 determines the modulating frequency of the received signal and presents the information to a fault locator 29 which can be microprocessor with a look-up table giving the piece of equipment with the fault condition or number of the monitor unit 16 at that location (col. 4, lines 4-8), and the display device 30 outputs information which pinpoints the malfunctioning equipment (col. 4, lines 14-15). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer to test the machine a processor calculating the location of the sensor as the system of Root would operate equally well on either tested structure.

With respect to claim 11, Root lacks the detail of each sensor including an accelerometer. However, Meyer discloses an accelerometer sensor 19 (col. 3, line 15), and a monitor unit 16 with a magnet 17 that is mounted on the housing 14 to sense vibration (col. 3, lines 8-10), and placing the monitor unit 16 is relatively simple and requires nothing more than placing the units 16 and logging the unit identity numbers vs. location (col. 4, lines 16-19, 36-38). Therefore, the method Meyer uses does incorporate the use of more than one sensor. It is well know art to use a plurality of accelerometers to detect vibration of rotating machinery. Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification, it can be assumed the device will inherently perform the same process. *In re King*, 802 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer to test the machine with accelerometers as the system of Root would operate equally well on either tested structure. Evidence of this can be found in Root which discloses a microphone 56 responsive to variations in the sound of the mill (col. 3, lines 54-55), microphone is adjacent to the mill (col. 3, lines 57-58).

With respect to claim 12, Root lacks the detail of displaying a graphical representation of vibrational events. However, Root discloses the microphone 56 which goes to a conditioning signal unit 58 connected to a transducer 60, the signal from the element 60 is sent directly to a monitor switch 62, and the monitor switch is adapted to

deliver a signal to the recorder controller 44 (col. 3, lines 57-67). Meyer discloses a central room equipment including a receiving antenna 26, a receiver 27 tuned to a carrier frequency, a demodulator 28 determines the modulating frequency of the received signal and presents the information to a fault locator 29 which can be microprocessor with a look-up table giving the piece of equipment with the fault condition or number of the monitor unit 16 at that location (col. 4, lines 4-8), and the display device 30 outputs information which pinpoints the malfunctioning equipment (col. 4, lines 14-15). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer to test the machine including displaying a graphical representation of vibrational events position data as the system of Root would operate equally well on either tested structure.

With respect to claim 18, Root lacks the detail of position data relating to position of vibrational events, and determining zones. However, Root discloses the microphone 56 which goes to a conditioning signal unit 58 connected to a transducer 60, the signal from the element 60 is sent directly to a monitor switch 62, and the monitor switch is adapted to deliver a signal to the recorder controller 44 (col. 3, lines 57-67), a microphone includes an alarm to signal the operator that the system has developed problems and when the response from the microphone 56 reaches the limit and the system includes means to take the feeder off automatic control (col. 2, lines 20-26), a microphone 56 responsive to variations in the sound of the mill (col. 3, lines 54-55). Meyer discloses a central room equipment including a receiving antenna 26, a receiver 27 tuned to a carrier frequency, a demodulator 28 determines the modulating frequency of

the received signal and presents the information to a fault locator 29 which can be microprocessor with a look-up table giving the piece of equipment with the fault condition or number of the monitor unit 16 at that location (col. 4, lines 4-8), and the display device 30 outputs information which pinpoints the malfunctioning equipment (col. 4, lines 14-15). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer to test the machine including position data relating and determining zones as the system of Root would operate equally well on either tested structure.

With respect to claims 19-21, Root lacks the detail of identifying the volumetric load including the steps of receiving data representing the mechanical events, the amplitude of mechanical events, the position of the mechanical events; and processing the received data. With further limitations of claim 20, Root lacks the detail where the data is received for a plurality of speeds. With the further limitation of claim 21, identifying the fractional filling. However, Meyer discloses in Figs. 2 and 3 a monitor unit 16 to sense vibration; an accelerometer sensor 19 generates an electrical signal corresponding to the sensed vibrations which are fed to the monitor circuit 20; and an AM transmitter and antenna 18 send the radio signal to the central station (col. 3, lines 8-17); a central room equipment including a receiving antenna 26, a receiver 27 tuned to a carrier frequency, a demodulator 28 determines the modulating frequency of the received signal and presents the information to a fault locator 29 which can be microprocessor with a look-up table giving the piece of equipment with the fault condition or number of the monitor unit 16 at that location (col. 4, lines 4-8), and the display device 30 outputs

information which pinpoints the malfunctioning equipment (col. 4, lines 14-15). Therefore, the method Meyer et al. uses can identify the volumetric load. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer to test the machine to identify volumetric as the system of Root would operate equally well on either tested structure. Evidence of this can be found in Root which discloses a microphone 56 responsive to variations in the sound of the mill (col. 3, lines 54-55), microphone is adjacent to the mill (col. 3, lines 57-58), and the microphone 56 which goes to a conditioning signal unit 58 connected to a transducer 60, the signal from the element 60 is sent directly to a monitor switch 62, and the monitor switch is adapted to deliver a signal to the recorder controller 44 (col. 3, lines 57-67).

3. Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Root. (3,690,570) in view of Meyer (4,237,454) as applied to claims 1-12 and 18-21 above, and further in view of Lofall (6,484,109).

Root used according to the teachings by Meyer, lacks the detail of graphical representation of the recorded data including mean and standard deviation of vibrational events. However, Lofall discloses in Fig. 1 a display means 22 and a vibration data collector and the average and sigma (one standard deviation) values are computed for the 24 vibration amplitudes (col. 18- lines15-16). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Root according to the teachings of Meyer, with the limitation taught by Lofall, to test a machine with mean an standard deviation representation of vibrational event as the system of Root according

to the teachings of Meyer would operate equally well on either tested structure. Evidence of this can be found in Root which discloses a microphone 56 responsive to variations in the sound of the mill (col. 3, lines 54-55), microphone is adjacent to the mill (col. 3, lines 57-58), and the microphone 56 which goes to a conditioning signal unit 58 connected to a transducer 60, the signal from the element 60 is sent directly to a monitor switch 62, and the monitor switch is adapted to deliver a signal to the recorder controller 44 (col. 3, lines 57-67).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamiko D. Bellamy whose telephone number is (703) 305-4971. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Tamiko Bellamy
T.B.
January 13, 2003

HELEN KWOK
PRIMARY EXAMINER